

The source for news and tips of interest to users of MSC-LIMS,
an affordable laboratory information management system for small labs.

Issue No. 3

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Welcome

Welcome to **MSC-LIMS Insights**. We hope this newsletter will help current MSC-LIMS users get the most out of their software. New and prospective users will find that this newsletter complements the product literature and downloadable demo you can find on our web site at www.msc-lims.com



Join our mailing list for more information. Sign up at www.msc-lims.com/lims/maillist.html.

This newsletter is for and about MSC-LIMS users. We welcome your comments, and your suggestions for topics you would like to see addressed in upcoming issues. Please send your thoughts to newsletter@msc-lims.com. ▲

MSC-LIMS In the News: Macro Magic

Macros allow you to integrate existing Excel reports with a new information system.

"Many water and wastewater professionals use Microsoft Excel extensively, producing reports and graphs that summarize lab and operations data. When they consider the advantages of a new LIMS, the notion of abandoning their familiar reports produces understandable reservations...

Fortunately, there is a solution."

So begins *Macro Magic*, penned by Mountain States Consulting LLC's (MSC's) Rick Collard. The article demonstrates how existing Excel reports can be integrated with new information systems, while completely preserving the report's layout and appearance.

Step-by-step instructions guide users through the process to turn an existing Excel report into a template that will automate report production with their new LIMS.

Read the article on our website at www.msc-lims.com/lims/macromagic.

The article originally appeared in the September 2004 issue of *Water Environment & Technology*, published by the Water Environment Federation ® (Alexandria, Virginia). Visit WEF at www.wef.org. ▲

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From the Developer

We are pleased to observe 2005 as the tenth anniversary of MSC-LIMS. Its first installation was at a lab right here in Wyoming. For a brief presentation of the software's humble origins, see MSC-LIMS' Ten-Year Anniversary, below.

More good news: MSC-LIMS continues to succeed, and Version 3.0, released in June 2004, is off to a great start. It has been well received in new installations – including the many labs that have taken advantage of our \$500 per User per Year Subscription Rate – and by the many version 2.x sites that have already updated.

Finally, if you haven't visited our website for a while, you'll find we've been overhauling. For a summary of new features, see the article describing our site's New Look and New Content in this issue.



Rick Collard is the founder of Mountain States Consulting and the principal developer of the MSC-LIMS software. You can reach Rick by email at rcollard@msc-lims.com.

MSC-LIMS' Ten-Year Anniversary

April 1, 2005, marks a decade of successful MSC-LIMS installations. Now a globally recognized software solution, MSC-LIMS began in the spring of 1995, in a small municipal lab on the wind swept plains of Wyoming...

Mountain States Consulting LLC (MSC) was founded in 1986 as an information systems consulting firm. Our focus shifted to laboratory solutions following the success of the first MSC-LIMS installation in 1995.

Here in Wyoming, Cheyenne's Board of Public Utilities laboratory administrator and its sole technician were responsible for all sampling and analysis in the City's two wastewater treatment plants, two water treatment plants, and the industrial pretreatment program. The lab was struggling with unwieldy paper-based records, increased sample testing load, lost and expired samples, and more frequent and extensive requests for lab data. And a LIMS budget of only \$10,000.

The Board was unable to locate a suitable commercial LIMS product within their budget, so they considered purchasing a custom program. In 1994, the lab administrator contacted MSC in Jackson, Wyoming.


Software developer Rick Collard recalled that the design process began with a simple list of requirements, because "many commercial LIMS' high-end features were not needed in a small lab." MSC proposed that the custom system be developed with Microsoft Access, a relational database management system for Windows.

"We chose Access because it is widely used, has extensive third-party support, and is accessible to non-programmers." It is also fully relational, so the system's underlying database model would be constructed with data integrity rules.

During the design phase, lab personnel approved MSC's database model and design specifications. In April, 1995, MSC installed the LIMS on the lab's existing 486 PC, and MSC-LIMS quickly became a vital tool in the daily operations of the laboratory.

Following MSC-LIMS' initial success, MSC enhanced and improved the product, then made it available to other labs. Current installations include water and wastewater, commercial environmental, petrochemical, and food testing labs throughout the U.S. and abroad.

Rick is justly proud of MSC's success. "Today, our only product is MSC-LIMS and our services are devoted to helping our clients successfully implement the LIMS."

MSC-LIMS' roots were documented in an article entitled [A Small Lab Develops A Laboratory Information Management System](#), published in *Water Online Times* in December 1996. 

Compacting and Repairing in Version 3.0

In MSC-LIMS versions 1.x and 2.x, compacting was accomplished using options on the MSC-LIMS menu on the Start menu. Since the compacting shortcuts included the path of the workgroup security file, the shortcuts often failed because they required manual editing in multi-user installations.

Beginning with MSC-LIMS version 3.0 the process of compacting is initiated differently to overcome the previous limitations. However, without Start menu shortcuts, it is important to understand how to compact and repair a version 3.0 database when something goes wrong.

Prior to compacting a database, Microsoft Access will automatically detect whether an Access file is damaged and will offer to repair the file. Therefore, whenever you encounter a possible damaged database file, your first course of action should be to compact the database. The procedures used to compact the MSC-LIMS front end software (LimsCode) and the back end database (LimsData) differ and are discussed below.

Compact LimsData

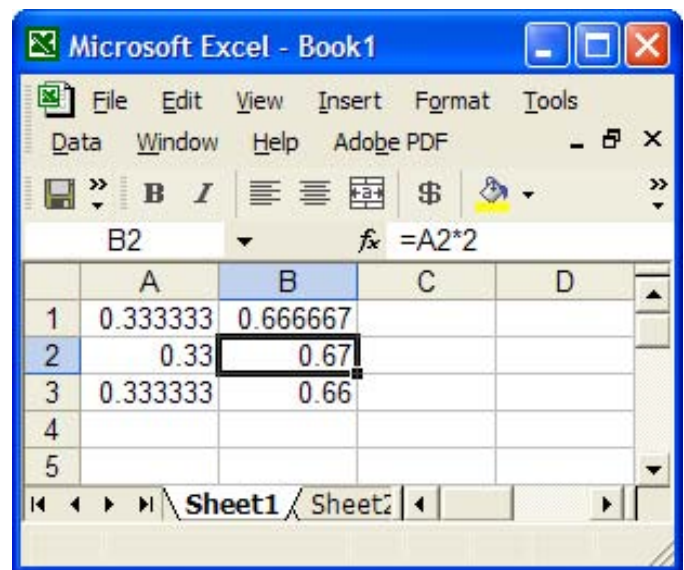
With frequent use, your LimsData database will become fragmented and use disk space inefficiently. Through compacting, Access creates a copy of the file and rearranges how the file is stored on your disk. In addition to minimizing the size of the database, compacting also defragments the file, rewrites all tables in primary key order, recreates indexes, and updates database statistics used by the query processor, all of which will optimize system performance. Therefore, we recommend you compact LimsData at least once a month but preferably once a week.

Only members of the Admins security role can compact LimsData, which requires exclusive access to the database. To compact LimsData, use the Compact LimData option on the Admin menu. If you have an MSC-LIMS multi-user license, you can use the View Current Users option (see example screen below) on the Admin menu prior to compacting to ensure no other users are currently logged on to the LIMS.

(Continued on page 4)

Notes from Technical Support Round or use Excel's "Precision as Displayed"

When you use MSC-LIMS' Excel interface to calculate and import analytical results, you should be aware of the difference between a cell's actual stored value, and the numbers displayed in the cell. One MSC-LIMS user called us recently with a problem that demonstrates the importance of this difference. A simple example shown in the two Excel screens below demonstrates the problem and its solution.



In the workbook above, cells A2 and B2 have been formatted to display their values with two decimal places. All remaining cells use the default General number format. Cells A1 and B2 have similar formulas to help us see the affects of rounding (the screen below shows the cell formulas).

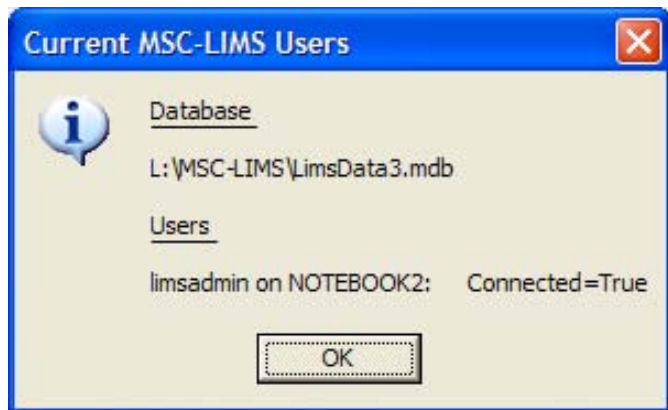
When MSC-LIMS imports the value in cell B2, the result value is similar to the number in cell B1. Given the formula in cell B2, a result of 0.66 was expected.

What happened?

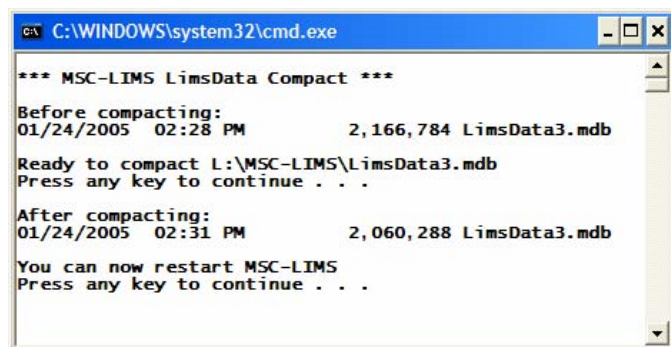
(Continued on page 6)

Compacting & Repairing in Version 3.0

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When you use the Compact LimsData option on the Admin menu, MSC-LIMS will close and you will see a window similar to the one below. Press any key then log on using an account in the Admins security role. After Access compacts the database the size of the database is displayed. Press any key to close the window. You can now log back on to the LIMS.



The normal steps used to compact LimsData described above, are initiated from within MSC-LIMS. But what can you do if you are unable to log on to the LIMS because your LimsData database is damaged? Understanding how MSC-LIMS performs the LimsData compact is the key to recovering your LimsData database when problems arise.

When you select the Compact LimsData option on the Admin menu, MSC-LIMS creates a batch file named CompactLimsData.bat in the workstation folder where the MSC-LIMS software is installed (normally C:\MSC-LIMS).

MSC-LIMS then exits and instructs the Windows operating system to process the commands in the file. Batch files (also called scripts), which originated with MS-DOS, are unformatted text files with one or more operating system commands.

If you encounter a damaged LimsData file, which prevents MSC-LIMS from starting, simply open Windows Explorer, navigate to the folder where MSC-LIMS is installed and double-click file CompactLimsData.bat to repair and compact the database. Note that file CompactLimsData.bat will only exist on workstations where the Admin menu's Compact LimsData option was previously used. If you prefer, you can put a shortcut to the CompactLimsData.bat file on your Windows desktop. Within Windows Explorer, right-click file CompactLimsData.bat, select Send To then choose the Desktop (create shortcut) option. Now you can use the desktop shortcut to compact LimsData when necessary.

Compact LimsCode

The MSC-LIMS front end software (LimsCode), which is installed on each MSC-LIMS workstation, can also benefit from compacting. The recommended method for compacting LimsCode is to use the automatic compacting feature in MSC-LIMS version 3.x.

To use this feature, select the Workstation Configuration option on the Admin menu then enable the "Compact LimsCode at exit" and "Delete temporary records at exit" options. When these options are selected, MSC-LIMS will automatically delete temporary records to reduce file size and compact the LimsCode database each time MSC-LIMS exits.

If you find the automatic compact cumbersome on an exceptionally slow workstation, enable the "Compact LimsCode at exit" feature only when you want to compact, exit the LIMS to compact then restart the system, and immediately disable the feature.

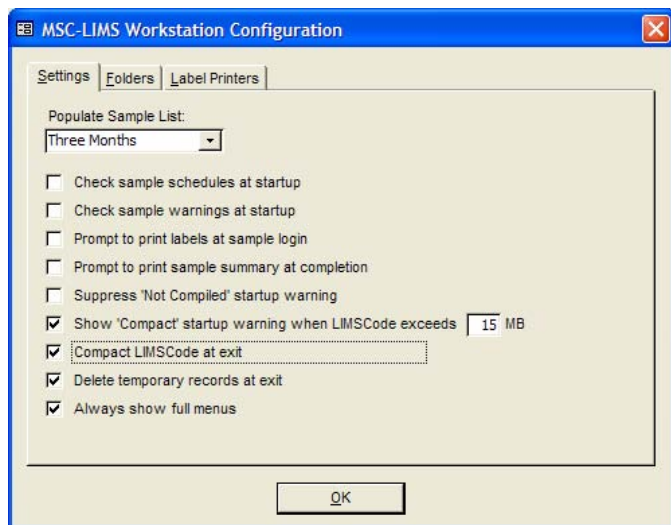
If you encounter a damaged LimsCode file, which prevents MSC-LIMS from starting, you can simply replace file LimsCode3.mde (in the folder where MSC-LIMS is installed) with a copy from another workstation in a multi-user installation. In multi-user installations you may also have a saved copy of LimsCode3.mde in a server folder used to automatically distribute updates to all workstations (see the LimsCode tab of the System Configuration option on the Admin menu).

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Compacting & Repairing in Version 3.0


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In a standalone installation, you can replace file LimsCode3.mde with either a backup or by copying the file from the MSC-LIMS CD.



If a current backup copy of file LimsCode3.mde is not readily available, you can also attempt to recover the file by compacting using a batch file. First, in the folder where MSC-LIMS is installed, make a copy of file CompactLimsData.bat and rename the new file CompactLimsCode.bat. Use Start | Programs | Accessories | Notepad to open the Notepad text editor then use File | Open and select file CompactLimsCode.bat just created. Now use Edit | Replace and change all occurrences of "LimsData3" to "LimsCode3" and all occurrences of ".mdb" to ".mde". If necessary, change the path for file LimsCode3.mde to the folder where MSC-LIMS was installed (normally C:\MSC-LIMS). Exit Notepad saving your changes.

Using Windows Explorer, navigate to the folder where MSC-LIMS is installed and double-click file CompactLimsCode.bat file to repair and compact the database.

Compacting and repairing in MSC-LIMS version 3.x is simpler than in previous versions. However, things can still go wrong and when they do you can use these techniques for a quick recovery. 

For Customers Only

This section of *MSC-LIMS Insights* is devoted to current users of MSC-LIMS. Here we briefly introduce only the most recent additions to MSC-LIMS.com Customers Only pages.

Use your login name and password to log on to the Customers Only section of our website. While you are there, visit these featured new topics:

Knowledge Base

[Interface BAX Instrument with MSC-LIMS Software](#)

Summary: This article describes the procedures necessary to interface Dupont/Qualicon's BAX® DNA-based detection instrument with the MSC-LIMS software, using Excel worksheets as the middleware between MSC-LIMS and the BAX.

The BAX system screens food and environmental samples for pathogens or other organisms, producing either "positive" or "negative" results for up to 96 samples per batch. The interface discussed in this article automates creating the BAX pre-run file and importing BAX results into MSC-LIMS, eliminating the need for manual data entry.


The Excel worksheets referenced in the article are available to Customers Only in the File Library – see below for details.

File Library

[MSC-LIMS BAX Rack Setup.xlt](#)

This Excel worksheet receives the analyses, sample ids and descriptions exported from MSC-LIMS in preparation for sample testing in the BAX. The worksheet graphically represents the 96 "wells" used by the BAX. The data from the worksheet is then exported to and used by the BAX system's software to record test results.

[MSC-LIMS BAX Data Import.xlt](#)

When the BAX test run is complete, this Excel worksheet receives the BAX results. From this worksheet the results are imported into the Results Entry by Analyte screen in MSC-LIMS. 

A New Look: MSC-LIMS.com New Look and New Content, Same Enriching Experience

Never let it be said we let the grass grow under our feet. The New Year brought an updated appearance to our website, www.msc-lims.com.

The new site design eschews flashing lights and embarrassing graphics. Avoiding gimmicks was not difficult – we prefer what one graphic designer praised as our “scientific look”: a clean, crisp layout and intuitive navigation.

The site content has also been streamlined. For example, while we are continually adding new information to the Customers Only section, now you don't have to plow through each page to find it. The **What's New** page lists fresh site content in descending chronological order. Bookmark What's New and you can periodically locate new topics at a glance.

Another useful introduction for Customer's Only is the **Upload File** feature. Because many users now have email filters that prohibit sending or receiving even innocuous attachments, this page allows MSC-LIMS' users to exchange files with us through our web site.

From our Home page, prospective users can directly access MSC-LIMS' new **3.0 demo**. See MSC-LIMS 3.0 Demo Unveils New Features Online, this issue.

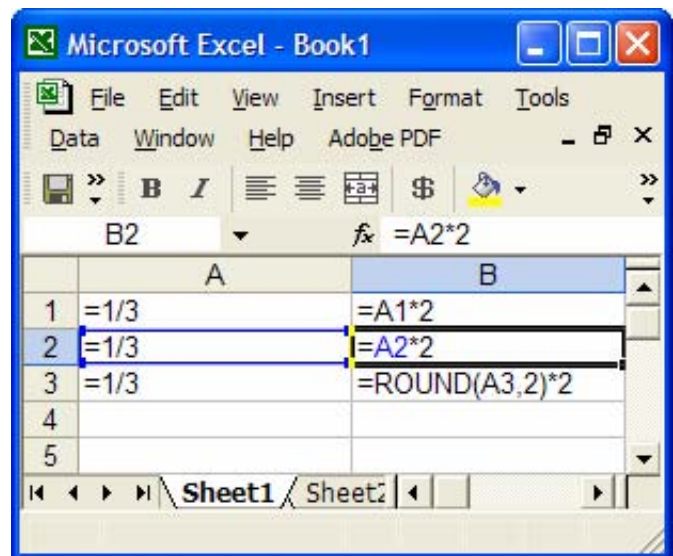
Other site modifications include links to recent press coverage and articles directly from the Home page, and highlighted Users' comments. All of our product literature is now available in read-on-screen and downloadable PDF format.

Just as you would expect from a cutting edge software company, the new website conforms to the international guidelines established by the World Wide Web Consortium (W3C). MSC-LIMS.com passed W3C's Validation Service review for Cascading Style Sheets (CSS) and valid Strict XHTML in conformance to W3C recommendations. W3C's stamps of approval on our Home page demonstrate that we have taken care to create an “interoperable” Web page.

Check out our new look, then drop us an email to let us know what you think. 

Notes from Technical Support: Round or use Excel's “Precision as Displayed”, (Continued from page 3)

Applying a specific numeric cell format in Excel does not change the cell's stored value with its default 15-digit numeric precision; it only affects how the value is displayed. The stored values in cells A2 and B2 are the same as the values shown in cells A1 and B1.



The recommended solution to this problem is to use Excel's ROUND function to obtain the desired result. The formula in cell B3 in the screen above rounds the result of the same quotient to two decimal places, which produces the correct result (0.66).

This is the recommended solution since the ROUND function need only be used within formulas in cells whose results are imported into MSC-LIMS. All remaining cells with formulas continue to be calculated with full numeric precision.


However, there are situations such as the caller's where this solution may be cumbersome. In this case, other intermediate calculations were also affected. A number of columns had been formatted to display the proper number of decimal places and the resulting rounding was not producing the expected results. If Excel would only perform its calculations with the cell's displayed value instead of the full precision of the stored value the problem would be solved. Excel's “Precision as displayed” feature was the solution.

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Software Demo Reveals All MSC-LIMS 3.0 Demo Unveils New Features Online


Dateline Jackson, Wyoming, December 30, 2004 - Prospective users may now download MSC-LIMS' interactive Version 3.0 demo with no obligation, directly from www.msc-lims.com. Labs researching laboratory information management system (LIMS) options may explore MSC-LIMS' features in detail without "signing up," privacy guaranteed.

The new MSC-LIMS Version 3.0 demo is an interactive self-guided tour of the system using annotated screen captures and report examples. Installation is simple: follow the download directions on the website. Uninstalls are thorough: no hidden files are added to Windows folders.

After viewing the demo, prospective users may contact MSC-LIMS developer Mountain States Consulting to schedule a live, on-line demo of the complete system. Call or write for more information. 


MSC-LIMS Annual Subscription for \$500

Dateline Jackson, Wyoming, March 22, 2004 – Mountain States Consulting, LLC, announces a significant reduction in the cost of its annual subscription license to \$500 per user per year for the complete MSC-LIMS system. The new subscription price heralds the June 2004 release of MSC-LIMS version 3.0, an Access 2002-based version. Annual subscriptions are available for both standalone and multi-user configurations, and technical support and version updates are included throughout the subscription period.

The annual subscription provides a complete non-source code version of all MSC-LIMS software including MSC-LIMS Archiving and MSC-LIMS Messaging. MSC-LIMS' integrated Excel interface extends the system's capabilities with custom reporting, data importing, and instrument interfacing without the need for customization. 

Notes from Technical Support: Round or use Excel's "Precision as Displayed", (Continued from previous page)

To force Excel to perform its calculations with the numeric precision of the displayed value, use Tools | Options then select the "Precision as displayed" option on the Calculations tab. When you select this option, Excel changes the stored value in a cell from full 15-digit precision to the format displayed.

Using the "Precision as displayed" feature in our example above, the stored and displayed value in cell B2 will automatically change to 0.66. Note that selecting this option will affect all cells in the workbook. 

Contact Us

Questions, comments, suggestions?
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